

**REMARKS**

The Applicants have carefully considered this application in connection with the Examiner's Action and respectfully request reconsideration of this application in view of the foregoing amendment and the following remarks.

The Applicants originally submitted Claims 1-18 in the application, and in prior responses, amended claims 12-13 and added new claims 19-21. In the present response, the Applicants have amended Claims 1 and 14, and added new claims 22-27. Additionally, an inadvertent typographical error has been corrected in Claim 5.

Support for the amendments to Claims 1 and 14 may be found in the Abstract and paragraph [0010] of the published application (U.S. 2003/0129501), for example. The new claims are supported by the specification, for example, see paragraphs [0039]-[0042] of the published application. Accordingly, Claims 1-27 are currently pending in the application.

**I. Rejection of Claims 1-10, 14, 16, 18 and 20 under 35 U.S.C. § 102**

The Examiner has rejected Claims 1-10, 14, 16, 18 and 20 under 35 U.S.C. §102(a) as being anticipated by Turberfield, "Photonic Crystals made by Holographic Lithography," MRS Bull, pp. 632-636 (08/2001) ("Turberfield"). The Examiner further rejects these same claims under 35 U.S.C. §102(b) as being anticipated by Campbell, *et al.*, "Fabrication of Photonic Crystals for the Visible Spectrum by Holographic Lithography, Nature", Vol. 404, pp. 53-56 (03/2000). ("Campbell"). The Applicants respectfully disagree.

Independent Claim 1 recites, "exposing a photo-sensitive medium to an optical intensity pattern under conditions that inhibits or prevents the optical intensity pattern from producing

refractive index changes in the medium." Claim 14 similarly recites, "the exposing being done under conditions that inhibits or prevents the products of the photo-chemical reactions from causing the refractive index changes."

In contrast, Campbell states:

"The duration of the laser pulse (6 ns) is short compared to the timescale of the physical and chemical processes induced by the exposure, so the interference pattern is undisturbed by photoinduced changes in the refractive index of the precursor." (Campbell, Page 54, Column 1)

Turberfield, a review article that cites back to Campbell, makes the same statement (Turberfield, Page 633, Column 3). Thus, both of these references suggest that their resin is maintained under conditions where physical and chemical processes induced by the exposure are changing the refractive index of the resin. Therefore, both Turberfield and Campbell fail to teach all of the elements recited in Claims 1 and 14 and their dependent claims.

Accordingly, the Applicants respectfully request the Examiner to withdraw the §102 rejection with respect to these Claims.

## II. Rejection of Claims 1-10, 14 and 16-20 under 35 U.S.C. § 103

The Examiner has rejected Claims 1-10, 14 and 16-20 under 35 U.S.C. §103(a) as being unpatentable over either Campbell or Turberfield, in view of Liang, *et al.* EP308227 (Liang). The Examiner has also rejected Claims 1-21 as being unpatentable over either Campbell or Turberfield, in view of Liang and U.S. Patent No. 6,063,898 to Endo *et al.* ("Endo"). The Applicants respectfully disagree.

As noted by the Applicants in their previous response mailed May 3, 2004, the Examiner has not set-forth the elements of independent Claims 1 and 14, or dependent claims, that the Examiner believes are taught or suggested by Liang, or, the elements that are not taught in Campbell or Turberfield, but taught in Liang. The Examiner's Office Action Mailed June 3, 2005, which repeats of the rejection mailed January 29, 2004, does not remedy this deficiency.

The Applicants respectfully request the Examiner to either clearly present the grounds for making his obviousness rejection based on these combinations of references, or, withdraw this rejection.

In the absence of any indication as to what elements of Claim 1 and 14 that the Examiner believes are taught or suggested by Liang, the Applicants continue to assume, as done in their response mailed May 3, 2004 (Page 13, Line 16), that the obviousness rejections of independent Claims 1 and 14 are based on Campbell or Turberfield alone.

However, as explained above in section I, these references do not teach exposing a photo-sensitive medium to an optical intensity pattern under conditions that inhibits or prevents the optical intensity pattern from producing refractive index changes in the medium, as recited in Claim 1. Nor

do these references teach exposing being done under conditions that inhibits or prevents the products of the photo-chemical reactions from causing the refractive index changes, as recited in Claim 14.

Therefore because neither Campbell nor Turberfield teach or suggest all of the elements of Claims 1 and 14, these references fail to establish a *prima facie* case of obviousness of claims 1-10, 14 and 16-20 under 35 U.S.C. §103(a). The Applicants therefore respectfully request the Examiner to withdraw these rejections.

Concerning the rejection Claims 1-21 over either Campbell or Turberfield, in view of Liang and Endo, the Applicants reiterate their request for a clear explanation of what elements the Examiner believes are taught by Liang and Endo, or alternatively, the Examiner withdraw this rejection.

In addition, the Applicants respectfully submit that the combination of Campbell or Turberfield, in view of Liang and Endo is improper, because there is no motive to combine Endo with Campbell or Turberfield.

It is by no means clear that the use of triethylamine is relevant to the dissolution the EPON SU-8 resin used by Campbell or Turberfield, as asserted by the Examiner. Endo uses triethylamine or other amines to dissolve or disperse his epoxy resin in a water-based coating (Column 57 of Endo, section titled, "thermosetting type water based coating compositions"). But Campbell and Turberfield dissolve their resin in gamma-butyrolactone (Campbell, Page 54, Column 1; Turberfield cited back to Campbell on Page 633, Column 3). Therefore one would have no motive to combine Endo's teaching of using amines to dissolve resins with the process of Turberfield and Campbell because the dissolving of EPON SU-8 was not identified as being problematic.

**III. Provisional Rejection of Claims 1-18 under Obviousness-Type Double Patenting**

The Examiner has provisionally rejected Claims 1-18 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1, 6 and 7 of co-pending U.S. Application No. 10,321,027 ('027).

In response, the Applicants submit that because all the other grounds for the rejection of the claims currently pending in the application have been successfully refuted as set-forth below, and because the '027 application has not yet issued, the Examiner should withdraw this provisional rejection and allow the claims to issue.

**IV. Prior Art Made of Record**


The Applicants believe that the prior art made of record and not relied upon by the Examiner is not particularly pertinent to the claimed invention, but the Applicants retains the right to address these references in detail, if necessary, in the future.

**V. Conclusion**

In view of the foregoing amendment and remarks, the Applicants now see all of the Claims currently pending in this application to be in condition for allowance and therefore earnestly solicit a timely Notice of Allowance for Claims 1-27.

The Applicants request the Examiner to telephone the undersigned attorney of record at (972) 480-8800 if such would further or expedite the prosecution of the present application.

Respectfully submitted,  
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